FUSE ALARMS

STEP-BY-STEP OFFICES

ARRANGED FOR ANI-TYPE B, C, OR D

1. GENERAL

1.01 This section describes a method of testing the fuse alarms associated with ANI types B, C, and D circuits.

1.02 This section is reissued to add Test E, which applies to step-by-step ANI-B offices where identifier circuit SD-1C593 is provided. This reissue affects the Equipment Test List.

1.03 The tests cover the following circuit conditions:

1.04 If alarms are extended to another office or attended location and provision is made to disable this feature, they should be disabled during these tests. If alarms are extended and no provision is made to disable them, local instructions should be followed.

1.05 ***Caution: If a regular alarm originates during these tests, the tests should be discontinued immediately so that the alarm will sound in the normal manner. Notify the proper persons that a regular alarm is sounding.***

1.06 The later design of fuse caps for 70-type fuses contain an aperture or slot adjacent to the hole for the colored bead, providing access

to the alarm test point with a 411C tool. The P-344900 fuse cap assembly is for use on nonmodular fuse blocks (18A, 19A, and 21A), and the P-11F667 fuse cap assembly is for use on modular fuse blocks (22- through 27-type). This style cap should be used when testing fuse alarms. (See Fig. 1.) ***Due to the hazards involved, discontinue the former procedure of testing fuse alarms by inserting a 411C tool or a 266C tool (wire burnisher) held in a 265C tool (contact burnisher holder) beside the colored bead on older caps without the slot or aperture.***

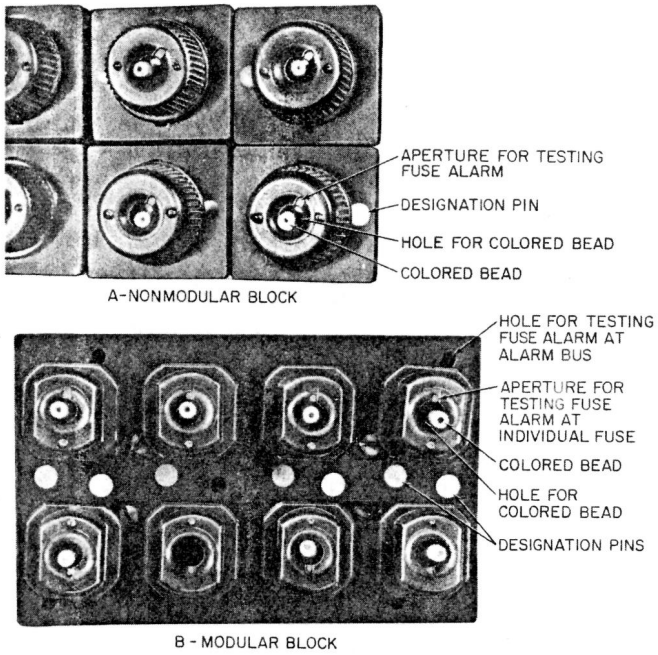

Fig. 1—Mounting for 70-Type Fuses

1.07 On modular-type fuse blocks (Fig. 1), there is an aperture in each corner of each block providing access to the alarm bus bar. Tests made from these apertures will check the alarm circuit and continuity of the alarm bus bar. Tests made from the aperture in the fuse cap will also check the contact between the fuse cap and the alarm bus bar.

1.08 Table A lists the ANI equipment to be tested, the fuse location, and the type of test to be applied.

1.09 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Parts 3 and 4 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

All Tests

2.01 W1AF cord, 8 feet 6 inches long, having resistance of 188 ohms, equipped with two 360A tools, one KS-6278 connecting clip and one 411C tool (for applying battery to fuse alarm bus bar, stud, or test point).

2.02 W1AF cord, 8 feet 6 inches long, having resistance of 188 ohms, equipped with two 360A tools, one 141 cord tip and one 411C tool (for applying battery to fuse alarm bus bar, stud, or test point when using 720A tool).

2.03 720A tool (used to obtain test battery from 70-type fuse panels).

Test C

2.04 Test receiver, 716C receiver (or equivalent) attached to a W2AB cord equipped with two 360A tools (2W21A cord), one KS-6278 connecting clip and one 411C tool (for checking the presence of battery).

→TABLE A←

ANI FUSE ALARMS FOR	FUSED ON		APPLY TEST	SEE NOTE
	EQUIPMENT FRAME	MISCELLANEOUS FUSE BAY		
Trouble ticketer frame ANI — type B	X		A, C	
Outpulser identifier trunk test frames ANI — type B	X		A	
Outpulser frame ANI — type B	X	X	A, B, C	1
Identifier frame ANI — type B	X		A,B,C,E	4
Trunk frames ANI — type B	X	X	A, C, D	1, 2
Trunk frames ANI — types B and C	X	X	A, C, D	1, 2
Outgoing trunk frames ANI — types B and C	X	X	A, C, D	1, 2
Outpulser and test frame ANI — type C	X		A, B, C	
Basic frame ANI — type D	X		A, D	2, 3
Supplementary frame ANI — type D	X		A, D	2, 3

Note 1: Fuse panels on equipment frames may not provide potentials such as —24V, —110V, +110V, etc. When required these potentials may be fused on miscellaneous fuse bays.

Note 2: An operated fuse brings in a fuse alarm and busies the trunk by releasing the MB relay. Testing the fuse alarm circuit will not affect trunk operation.

Note 3: Fuses assigned to the outpulser will busy the outpulser when operated or tested.

Note 4: When identifier circuit SD-1C593-01 is provided, Test E should be performed at the identifier remote unit.

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1a	If testing -48V, 35-type fuses— Connect KS-6278 connecting clip of W1AF cord to frame test battery post.	
2b	If testing other then -48V, 35-type fuses— Connect KS-6278 connecting clip to load side of spare fuse of same potential as fuses to be tested.	
3c	If testing -48V, 70-type fuses— Connect KS-6278 connecting clip of W1AF cord to frame test battery post.	

STEP	ACTION	VERIFICATION
4d	If testing other than -48V, 70-type fuses— Connect 141 cord tip of W1AF cord to 360A tool of 720A tool.	
5d	At spare fuse position of same potential as fuse to be tested— Remove fuse cap and dummy fuse and replace with 70A fuse and cap of 720A tool.	
Test C		
6	Connect KS-6278 connecting clip of test receiver to frame ground.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Standard Fuse Alarm		
35-Type Fuses		
	Note: When alarm bus bar is common to a row of fuses, one test per row is sufficient. When different potentials are fused on same row or when alarm stud is individual to each fuse, a test must be made from each alarm bus bar or stud.	
6	Using W1AF cord connected to proper potential, touch 411C tool to alarm bus bar or stud.	Red aisle pilot lamps lighted. FA lamp lighted. Major alarm sounds.
7	Disconnect 411C tool.	Aisle pilot and FA lamps extinguished. Major alarm silenced.
8e	If no further tests using this potential are to be made— Disconnect W1AF cord.	
9	Repeat appropriate steps in Preparation and Steps 6 through 8e for other potentials fused on same fuse panel or bay.	
70-Type Fuses		
10	At first fuse position in each row— Using W1AF cord connected to proper potential, insert tip of 411C tool into aperture of fuse cap and touch alarm test point.	Red aisle pilot lamps lighted. FA lamp lighted. Major alarm sounds.

STEP	ACTION	VERIFICATION
11	Disconnect 411C tool.	Aisle pilot and FA lamps extinguished. Major alarm silenced.
12	Repeat Steps 10 and 11 for last fuse position in each row.	
13e	If no further tests using this potential are to be made— Disconnect W1AF cord.	
14	Repeat appropriate steps in Preparation and Steps 10 through 13e for other potentials fused on same fuse panel or bay. ***Note:*** If more than one potential is fused on a row, a test must be made for each potential.	
15d	If testing other than -48V, 70-type fuses— Disconnect 720A tool and replace dummy fuse and cap.	

B. Fuse Alarm With Fuse Guard (FG) Lamp

Caution 1: This test will cause the circuit fused to be made busy.

Caution 2: It is important that after completing the test of the last fuse position at each relay rack, the AR key be momentarily operated.

6	At first fuse position of first row— Using W1AF cord connected to proper potential, insert tip of 411C tool aperture of fuse cap and touch alarm test point.	Red aisle pilot lamps lighted. FA lamp lighted. Major alarm sounds.
7	Disconnect 411C tool.	Aisle pilot and FA lamps extinguished. Major alarm silenced. FG lamp lighted.
8	Repeat Steps 6 and 7 for last fuse position of first row and for first and last fuse position of other row.	FG lamp extinguished, FA and aisle pilot lamps lighted, and major alarm sounds while 411C tool is connected to alarm test point. FG lamp lighted, FA and aisle pilot lamps extinguished, and major alarm silenced while 411C tool is disconnected.
9	Momentarily operate AR key.	FG lamp extinguished.

STEP	ACTION	VERIFICATION
10e	If no further tests using this potential are to be made— Disconnect W1AF cord.	
11d	If testing other than -48V, 70-type fuses— Disconnect 720A tool and replace dummy fuse and cap.	

C. Pilot Fuse 70-Type

Caution 1: This test may cause the circuit fused to be made busy.

Caution 2: When testing alarm-type pilot fuses, every precaution should be taken to avoid accidental grounding of the test equipment as the battery sides of alarm-type pilot fuses are directly connected to main distributing fuses.

Caution 3: It is important that after completing the test of the last fuse position at each relay rack, the AR be momentarily operated.

7	Remove pilot fuse.	
8	Using 716C test receiver, test for battery on ring upon which base of fuse normally rests.	Battery present.
9	Test for battery on contact nearest small slot in fuse block.	Battery present.
10	Replace pilot fuse.	
11	Using W1AF cord connected to proper potential, insert tip of 411C tool into aperture of pilot fuse cap and touch alarm test point.	Red aisle pilot lamps lighted. FA lamp lighted. Major alarm sounds.
12	Disconnect 411C tool.	Aisle pilot and FA lamp extinguished. Major alarm silenced. If testing circuits with fuse guards— FG lamp lighted.
13e	If testing circuits with fuse guards— Momentarily operate AR key.	FG lamp extinguished.
14f	If no further tests using this potential are to be made— Disconnect W1AF cord.	

STEP	ACTION	VERIFICATION
15g	If no further tests are to be made— Disconnect 716C receiver.	

D. Talk Battery Filter Fuse

ANI—Types B and C

6	At talk battery filter— Using W1AF cord, insert tip of 411C tool into test hole on FC1 fuse mounting and touch alarm test point.	FC1, FA lamps lighted. Major alarm sounds.
7	Remove 411C tool from test hole.	FC1, FA lamps extinguished. Major alarm silenced.
8	Insert tip of 411C tool into test hole on FC2 fuse mounting and touch alarm test point.	FC2, FA lamps lighted. Major alarm sounds.
9	Remove 411C tool from test hole.	FC2, FA lamps extinguished. Major alarm silenced.
10e	If no further tests are to be made— Disconnect W1AF cord.	

ANI—Type D

Caution: When testing alarm-type filter fuses, every precaution should be taken to avoid accidental grounding of the test equipment as one side of the alarm fuse is connected to a main distributing fuse and the other side is connected to the 15 amp filter fuse.

11	At associated fuse panel— Remove C1 alarm fuse.	
12	Using 716C test receiver, test for battery on ring upon which base of fuse normally rests.	Battery present.
13	Replace C1 alarm fuse.	
14	If filter is equipped with C2 fuse— Repeat Steps 11 through 13 for C2 alarm fuse. *Note:* Fuse alarm is common to and tested with talk battery fused on same row in Test A.	

STEP	ACTION	VERIFICATION
15f	If no further tests using 716C receiver are to be made— Disconnect 716C receiver.	

E. ▶Fuse Failure on Identifier Remote Unit

1	At identifier remote unit— Remove fuse A2.	Lamps PF and PT lighted. Audible alarm sounded.
2	Momentarily operate ACO switch.	Audible alarm silenced. ACO lamp lighted.
3	Insert fuse removed in Step 1.	
4	Momentarily operate PFR switch.	All lamps extinguished.
5	Remove fuse B2.	Lamp SPF lighted. Audible alarm sounded.
6	Operate ACO switch.	Audible alarm silenced. ACO lamp lighted.
7	Insert fuse removed in Step 5.	
8	Momentarily operate PFR key.	All lamps extinguished.◀